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(54) Chocolate work

(57) A process for reproducing images on confections, particularly chocolate plaquettes, employs screen-printing using a conventional printing screen, but substituting melted chocolate for conventional printing ink, the melted chocolate having a colour contrasting with that of the surface to be marked. The apparatus used includes heating means for maintaining a predetermined temperature at the screen, for example radiant heat lamps the heat output from which is adjustable by means of thermostatic control, or manually by raising or lowering the lamps. The blank chocolate plaquettes are held in openings cut in a sheet of flexible rubber-like material.

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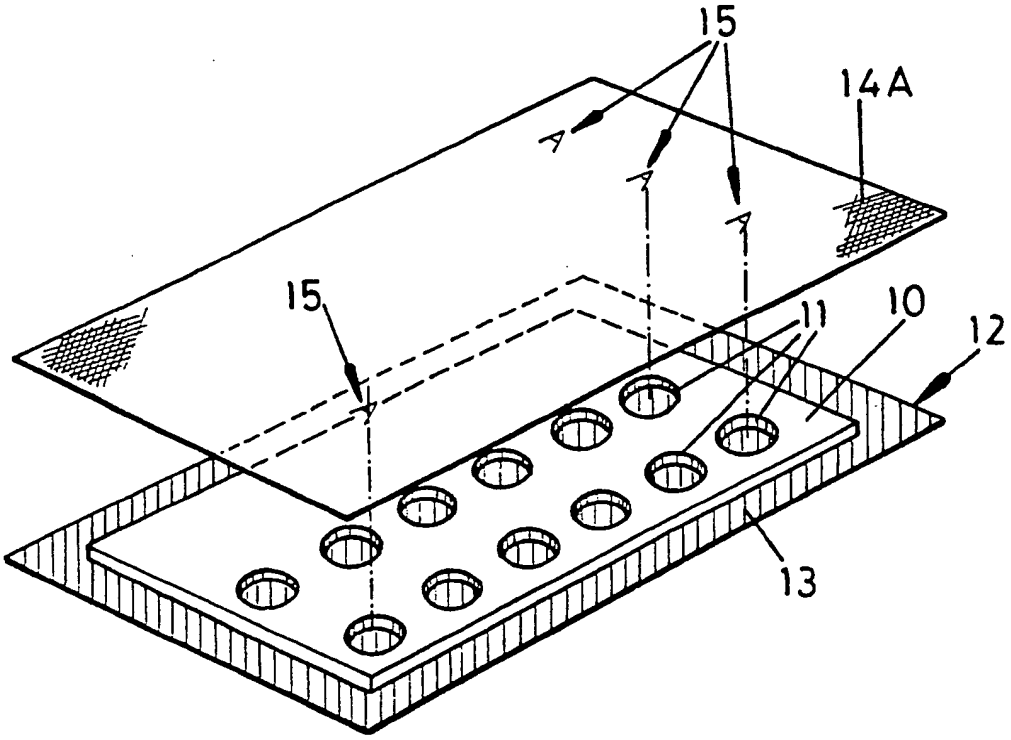

FIG.1

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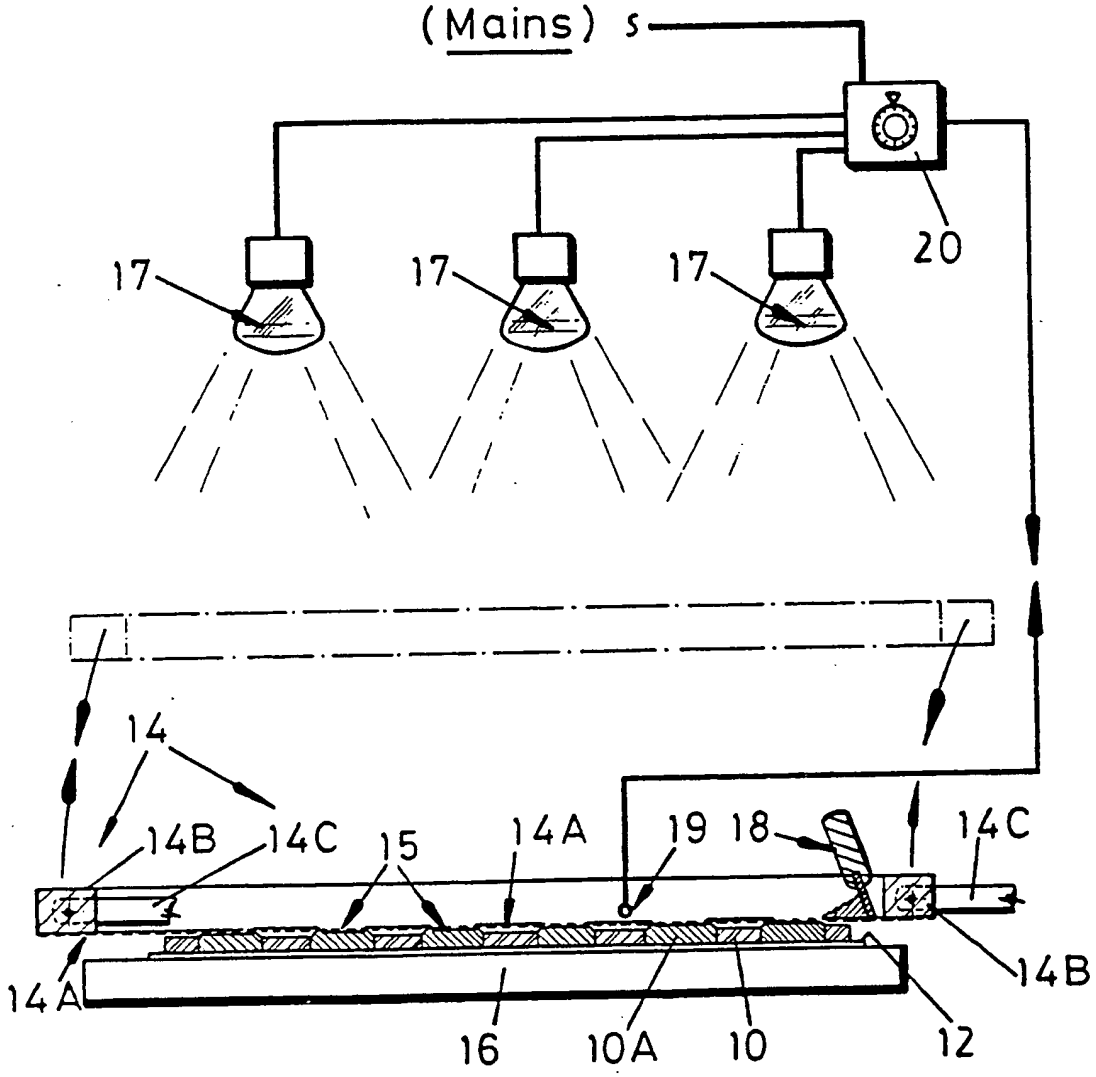

FIG. 2

CHOCOLATE WORK

This invention relates to confections and to a process and apparatus for making confections.

According to the present invention there is provided a confection having a mark applied thereto by screen-printing.

Preferably, the mark comprises chocolate or chocolate with a colouring agent added thereto.

Preferably, the confection is made entirely of chocolate.

Further, according to the present invention, there is provided a process for making a marked confection comprising the steps of providing a confection having a blank surface, and applying a mark to said surface by means of screen-printing using melted chocolate as the principal printing medium.

Preferably, the process includes the step of heating the melted chocolate continuously or intermittently on the printing screen.

Preferably the confection is made entirely of chocolate.

Still further, according to the present invention, there is provided apparatus for use in producing a marked confection comprising a support means for supporting a confection, screen-printing means co-operably arranged over the support means, and heating means adapted and arranged for maintaining a pre-determined temperature at the screen of the screen-printing means.

Hitherto, the marking of chocolate confectionery (other than by hand-piping) has been achieved by reproduction from a mark incorporated in the mould used in the production of the confectionery. Thus, the resolution or quality of pictorial detail or effect has been limited to that attainable by

engraving process. We have found that screen-printing on to set chocolate using a printing medium of melted chocolate is feasible if performed with control over paramaters not conventionally associated with screen-printing.

By adapting screen-printing for chocolate work, chocolate confectionery can be marked with images of a quality hitherto assumed to be impossible on chocolate and having wide applicability and appeal for oramentation and promotional/ advertising purposes.

An embodiment of the invention will now be described, by way of example, and with reference to the accompanying diagrammatic drawings in which:-

Fig. 1 is a perspective "exploded" view including a printing screen and moulds for chocolate blanks and;

Fig. 2 is a sectional side elevation of part of apparatus in accordance with the present invention.

The following description is for the production of disks in plain dark or "white" chocolate, each marked with a "logo" in contrasting chocolate. In the present context, a "logo" refers to, for example, the name of a hotel group in a distinctive type-style.

In the drawings, a mould for the chocolate disks consists of a sheet of 10 of food-quality rubber 3mm thick with cut-outs 11 dimensioned to the diameter of chocolate disk required. The sheet 10 is backed by a layer 12 of glacine paper the top surface of which may bear a raised pattern (indicated by reference numeral 13) to be imparted to the back sides of the chocolate disk. The sheet 10 and glacine paper layer 12

are carried by any suitable flat surface (not shown) for the purpose of making the blank chocolate disks. In Fig. 1, the image-carrying fabric screen 14A of a screen-printing means 14 (Fig. 2) is shown spaced above the rubber sheet 10 to illustrate that the spacing of the cut-outs 11 in the sheet 10 are matched with the spacing of images 15 produced in the screen 14A by conventional methods.

Tempered coveture chocolate is prepared and measured into the moulds formed by the rubber sheet 10 which is immediately vibrated to spread the chocolate evenly in the cut-outs 11 to form sound disks having a good quality flat top surface very slightly raised above the top surface of the sheet 10. The filled moulds are preferably chilled to set the chocolate prior to the screen-printing procedure.

In a modified production of chocolate blanks, the glacine paper is replaced by a sheet (not shown) of a plastic film have a finely textured surface and pleasing pattern. When the blanks are formed and solidified the assembly comprising the sheet 10 and the blanks held therein is turned over so that subsequent marking process is applied to the patterned surfaces reproduced in the chocolate blanks. Thus, it will be appreciated that the said textured surface has a fineness compatable with the high resolution marking herein envisaged, and the term "blank " used herein and in the appended claims means suitable for marking, in context.

In Fig. 2, the apparatus for completing the process for producing a marked chocolate confection consists of a support

means in the form of a table 16, the screen printing means 14, and a heating means in the form of infrared radiant heat lamps 17.

More particularly, the table 16 may be a known type of water-cooled table. The screen-printing means 14 has the printing screen 14A stretched on a frame 14B which is carried by a parallel-link mechanism represented by arm portions 14C. The parallel-link mechanism (not shown in full) enables the printing screen 14A to be shifted relative to the surface of the table 16 substantially normally. The screen-printing means 14 further includes a conventional squeegee 18 and a temperature-sensing element 19. The lamps 17 are located above the raised portion of the screen-printing means and are associated with a control means 20 operable to regulate the heat output from the lamps either upon a continuous or an intermitent basis according to a predetermined temperature which is sensed by the sensor element 19.

In preparation for the marking process, tempered coveture chocolate is again used. Where the chocolate blanks are of "white"chocolate, the printing medium chocolate is preferably dark. However, where the chocolate blanks are of dark chocolate, it is desirable to increase the opacity of "white" chocolate for use as the printing medium by the addition of titanium white food colouring. In addition to the "whitener", a colouring agent may be added as desired. The printing medium chocolate should be maintained within a temperature range 30°C to 33°C and to this end the control unit 20 is appropriately adjusted,

and some printing medium chocolate is placed in its melted state at one end of the printing screen 14A clear of the images 15. A filled sheet 10 of chocolate blanks 10A is located on the table 16 so that the top surface of the chocolate blanks will correctly register with the images 15 on the printing screen 14A. Immediately, screen-printing is effected on to the chocolate blanks as quickly as possible and the filled sheet 10 with the marked confections is promptly removed to a cool place. This process is repeated as required with replenishment of the printing medium melted chocolate from time to time. By maintaining the temperature at the printing screen 14A, blockage of the screen is prevented.

It will be appreciated that the parallel-link mechanism includes adjustable stop means (not shown) effective to hold the printing screen 14A off the filled sheet 10 so that "snap-off", as is known in screen printing, is achieved.

The mesh size for the printing screen is preferably in the range 70/110 (threads per cm), but this can be determined by trial and error.

It is envisaged that within the scope of the present invention many modifications of the apparatus above described are possible, including extensive "mechanisation", but simply for the purpose of increasing production throughput. In one modification, the lamps 17 are carried by raising and lowering means operable either manually, or by a drive automatically, as an alternative to regulating the actual heat output from the lamps. In another modification, the printing screen is of perforated sheet material other than a fabric. Also, it will be appreciated that the chocolate blanks may be produced having

any desired shape within the capability of moulding or other forming method.

The use of the sheet 10 of rubber (food-quality or the like) in the process of moulding the chocolate blanks enables subsequent firm holding of the blanks during screen-printing despite any shrinkage of the blanks during cooling and solidifying. This contributes to the attaining of quality images on the blanks.

CLAIMS

1. A confection having a mark applied thereto by means of screen-printing.

2. A confection as claimed in claim 1, wherein the mark comprises chocolate or chocolate with a colouring agent added thereto.

3. A confection as claimed in claim 1 or 2, wherein the comfection is made substantially entirely of chocolate.

4. A process for making a marked confection, comprising the steps of providing a confection having a blank surface, and applying a mark to said surface by means of screen-printing using melted chocolate as the principal printing medium.

5. A process as claimed in claim 4, including the step of heating the melted chocolate continuously or intermittently on the printing screen.

6. A process as claimed in claim 4 or 5, wherein the said confection is a chocolate confection.

7. A process as claimed in any one of claims 4 to 6, wherein the confection is made of dark coloured chocolate and the principal printing medium is melted chocolate of a contrasting colour; or vice-versa.

8. A process as claimed in any one of claims 4 to 7, wherein the said screen-printing is effected using a fabric screen having a mesh size in the range 70 to 110 threads per centimeter.

9. Apparatus for use in producing a marked confection, comprising a support means for supporting a confection, screen-printing means co-operably arranged over the support means, and heating means adapted and arranged for maintaining a pre-determined temperature at the screen of the screen-printing means.

10. Apparatus as claimed in claim 9, wherein the heating means comprises radiant heat lamps.

11. Apparatus as claimed in claim 10, wherein the heat lamps are mounted on means operable to raise or lower the lamps for adjustment of temperature at the screen-printing means.

12. A confection having a mark applied hereto, substantially, as hereinbefore described with reference to the accompanying drawings.

13. A process for making a marked confection, substantially as hereinbefore described with reference to the accompanying drawings.

14. Apparatus for use in producing a marked confection, substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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